

REMARKS

Claims 1, 2, 6-12, 19-23, 25-29, 31-34, 41, 43-48, 53, 55, 56, 69, and 71-85 were presented for examination.

Claims 1, 2, 6-12, 19-23, 25-29, 31-34, 41, 43-48, 53, 55, 56, 69, and 71-85 were rejected.

Applicant is hereby amending claims 1, 2, 31, 45, 46, 56 and 78 to more distinctly claim its invention. Applicant is cancelling claim 85. No new claims have been added.

Substance of the interview

Applicant thanks the Examiner for his time in conducting an in-person interview on June 13, 2007. During the interview, Applicant's representative R. Kehl Sink, Applicant's attorney Mike Farn and the Examiner discussed claim 1, as exemplary, and the rejections based on Black and Tan, sometimes in combination with other secondary references. Applicant stated that neither Black nor Tan discloses scanning a treatment beam in a three-dimensional scanning pattern to treat tissue. The Examiner suggested amending claim 1 to recite "a three-dimensional scanning pattern to treat within a volume of biological tissue." Agreement was reached that this amendment would overcome the rejections based on Black and Tan. The Examiner also suggested that claim 1 be further amended to be limited to small spot size and/or high numerical aperture to further support the three-dimensional scanning aspect of the invention. The issues discussed during the interview, as well as other issues, are summarized in more detail below.

Claims 2, 46 and 85: Under 35 USC 112, second paragraph

Claims 2, 46 and 85 were rejected under 35 USC 112, second paragraph, as being indefinite. Claims 2 and 46 have been amended by deleting “at least one of”, addressing the Examiner’s rejection. Claim 85 has been cancelled. Applicant respectfully requests the Examiner withdraw this rejection.

All pending claims: Black and Tan combined do not disclose scanning a treatment beam in a three-dimensional scanning pattern to treat a volume of biological tissue.

All pending claims were rejected under 35 USC 103(a) as unpatentable over the combination of Black (5,531,740) and Tan (5,312,395), sometimes in further combination with various other references. Applicant is amending independent claims 1,31, 45, and 78 to recite “scanning said combined treatment beam in a three-dimensional scanning pattern to treat within a volume of biological tissue,” which was agreed would overcome the current rejections.

More specifically, during the interview, the Examiner explained the current rejections as follows. Black does not teach scanning a treatment beam in a three-dimensional scanning pattern. However, Tan teaches the removal of amateur multi-color tattoos which contains pigments distributed at different depths. Therefore, the application of Black’s device to Tan’s removal of amateur multi-color tattoos with pigments at different depths would result in a device that delivers a treatment beam to different depths and, therefore, it must scan a treatment beam in a three-dimensional scanning pattern.

Applicant traversed this characterization and agreement was reached during the interview that the current amendment would be sufficient to sustain Applicant’s traverse. In more detail, first, there does not appear to be any mention of any three-dimensional delivery or depth

variation of a treatment beam in Black. In fact, if anything, the opposite is true. The area 32 being treated in Black is always depicted as flat (see Black's figures 1, 2 and 3) and, while there are many descriptions of x-y scanning, Applicant could not find a single mention of z scanning. For example, Figure 4 shows a controller for x-y scanning but no z control. Furthermore, the device shown contains a fairly significant optical system and the entire optical system is mounted on x and y rails 38, 40 to achieve motion in the x and y directions. Notably, no z rails or z motion are depicted or described.

Second, and more importantly, Black's mode of operation is inherently two-dimensional, and not three-dimensional. As stated in the Summary of the Invention, “[a]s the apparatus scans [in x and y] an area enclosing the intricate pattern of veins, the treatment beam is activated only when the laser is focused on a region of skin having a predetermined color, e.g., the red color of a varicose vein. This color-activated method of treatment eliminates the time-consuming procedure of manually tracing the treatment area or preprogramming a computer to trace the treatment area.” Col. 2 ll. 17-24.

Black is treating veins. However, Black does not treat a vein by having a treatment beam follow along the vein in x, y and z. Rather, Black first defines a two-dimensional area to be treated. His system then scans across the area in x and y, with a detector determining the color at each (x,y) location. At each (x,y) location, if the detector detects the color of a vein, the treatment beam is activated. The detector then scans to the next (x,y) location, repeating this process until the entire area has been treated. There is no tracking of individual veins. Rather, the detector is systematically scanned across the area, with the treatment beam activated to treat vein-colored locations as it encounters them. This treatment approach is inherently two-dimensional since it depends upon systematically scanning across an area. Note that in the

passages from Black, there is no mention of volume; Black always speaks in terms of scanning an area.

Furthermore, since Black is treating based on color, there also is no need for scanning in the z direction. Black's treatment is based on color and the treatment beam is selectively absorbed by the target structures (veins). Thus, the target beam need not be focused to a small spot size (as recited in claim 1) in order to obtain adequate energy levels. Instead, a collimated or loosely focused beam can be used since the target structures will selectively absorb the light energy. This affords a large depth of field which, in turn, obviates any need for scanning in the z direction.

Assuming for the moment that there was motivation to apply Black's device to Tan's multi-color tattoo application, the result would not be a system that scans a treatment beam in a three-dimensional scanning pattern. First, it is not clear whether any depth variation would be required. For example, Tan's device itself applies light to the end of a positioning extension, apparently without any depth variation. Col. 2 ll. 62-64. In other words, even if a multi-color tattoo contained pigments at different depths, it is not clear that a treatment beam would need to be scanned to different depths to successfully treat the tattoo.

The secondary references do not overcome the shortcomings of Black and Tan, nor are they alleged to.

Therefore, Applicant respectfully submits that independent claims 1, 31, 45, and 78 and all corresponding dependent claims are patentable over the cited references.

Applicant believes that the application is in condition for allowance of all claims herein, claims 1-2, 6-12, 19-23, 25-29, 31-34, 41, 43-48, 53, 55, 56, 69, and 71-84 as amended, and

therefore a Notice of Allowance is respectfully requested. If the Examiner believes that for any reason direct contact with Applicant's attorneys would help advance the prosecution of this case to finality, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,

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